
REMARKS

Reconsideration of the present application is respectfully requested.

Applicants have amended the specification to correct spelling errors. Applicant asserts that no new matter has been added.

In addition, Applicants have amended certain of the pending claims to more clearly recite the infrared sensor of the present invention and not in response to an outstanding objection or rejection. Specifically, claim 4 has been amended to more clearly recite the arrangement of the first and second sensor elements and their respective through holes.

The drawings have been objected to under 37 CFR 1.83(a) for failing to show every feature of the invention specified in the claims. Specifically, the Examiner indicated that each of the plurality of temperature compensation elements being arranged to overlap with a corresponding one of the plurality of sensor elements as recited in claim 1 must be shown or this feature must be canceled from the claim.

Applicants respectfully assert that this feature is shown in FIGs. 11A and 11B and discussed on page 16, lines 12 - 17. However, in an effort to further prosecution of the present application, Applicants have amended claim 1 to recite “a plurality of temperature compensation elements provided on the semiconductor substrate, each of the plurality of temperature compensation elements being arranged adjacent to a corresponding one of the plurality of sensor elements” as shown in FIG. 6 and discussed on page 8, line 26 – page 9, line 3. Applicants respectfully assert that this amendment clarifies the features recited in claim 3 without further narrowing the claim since, as shown in FIGs. 11A – 11B, the temperature compensation elements not only overlap, but also are adjacent to, the sensor elements.

Claims 1-16 have been rejected under 35 U.S.C. §112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which Applicants regards as the invention. Specifically, the Examiner stated that in claims 1 and 12 the phrase “a measurement member to measure a temperature of the measurement member” recited in connection with the plurality of sensor elements is unclear. In response, Applicants have amended claims 1 and 12 to recite “the plurality of sensor elements for receiving infrared radiation from a measurement member” and to therefore be definite. In view of the amendments to claims 1 and 12, Applicants respectfully request that the rejection under 35 U.S.C. §112, second paragraph, of claims 1 and 12 as well as their dependent claims 2-11 and 13-16, respectively, be withdrawn.

Claims 1, 7, 8, 11 and 12 have been rejected under 35 U.S.C. §103(a) as being unpatentable over Japanese Patent No. JP-09-218086. Applicants respectfully traverse this rejection. In addition, although the Examiner incorrectly referred to the primary inventor of JP-09-218086 as Satoshi, Applicants respectfully assert that Satoshi is the inventor’s first name and Ito is the correct last name of this inventor. However, to avoid confusion Applicants will hereinafter refer to JP-09-218086 simply as JP ‘086.

The infrared image sensor of the present invention includes a semiconductor substrate 11 on which a sensor array 2 and a plurality of temperature compensation elements 30 are provided. The sensor array 2 includes a plurality of sensor elements 2a which receive infrared radiation that is incident thereon and provide image data that is based on the infrared radiation to a processor. The plurality of temperature compensation elements 30 performs temperature correction to the outputs of the sensor elements 2a by providing a reference temperature of the

semiconductor substrate 11 that is subtracted from the temperature produced by infrared radiation. The temperature corrected image data provides for more accurate thermal imaging.

JP '086 discloses an infrared radiation sensor array including a semiconductor substrate 5a, infrared radiation reflecting metal films 8 and 8a, and sensor elements 1A, 1B and 1C. As described in paragraph [0030] of JP '086, the infrared radiation reflecting element films 8 and 8a are for intercepting heat conduction to therefore decrease cross talk between the sensor elements 1A, 1B and 1C.

Applicants respectfully direct the Examiner's attention to claim 1 of the present application, which presently recites an infrared image sensor including a plurality of temperature compensation elements for performing temperature correction to an output of the corresponding one of a plurality of sensor elements. Applicants respectfully assert that JP '086 does not teach or suggest that the metal films of the infrared sensor are for performing temperature correction, much less that the metal films are for performing temperature correction to outputs of corresponding sensor elements.

In the present Office Action, the Examiner has alleged that it is inherent that the plurality of metal films 8 performs temperature correction to an output of the corresponding one of the plurality of sensor elements because the current value which flows into each of the sensor elements 1A, 1B and 1C is read by the external digital circuit through the metal films 8. Further, the Examiner has alleged that the energy distribution of the infrared radiation is imaged and therefore the temperature of the sensor elements will be distributed into the metal films. However, Applicants again respectfully assert that JP '086 fails to teach or suggest that the metal films are for performing temperature correction. Rather, the metal films disclosed by JP '086 are for simply blocking or balancing the infrared radiation on the substrate to reduce cross talk

between sensor elements. Even assuming *arguendo* that, in reducing the cross talk, the metal films unintentionally correct the temperature of the sensor elements, the metal films would not be performing temperature correction to outputs of the sensor elements and would instead be directly influencing the temperature of the sensor elements themselves.

In view of the above, it is respectfully requested that the rejection of claim 1, as well as claims 7, 8 and 11 which depend therefrom, be withdrawn.

Claim 12 recites an infrared image sensor including a plurality of temperature compensation elements for performing temperature correction to outputs from the the plurality of sensor elements. As discussed above in connection with claim 1, JP '086 fails to teach or suggest that the metal films of the infrared sensor are for performing temperature correction, much less that the metal films are for performing temperature correction to outputs of the plurality of sensor elements. Therefore, it is respectfully requested that the rejection of claim 12 be withdrawn for the reasons discussed above in connection with claim 1.

The Examiner has indicated that claims 2 – 6, 9, 10 and 13 – 16 would be allowable if rewritten to overcome the rejections under 35 U.S.C. §112, second paragraph, and to include all of the limitations of the base claims and any intervening claims. Applicants thank the Examiner for this indication of allowability and, in response, have amended claims 2, 9, 13 and 14 to overcome the rejections under 35 U.S.C. §112, second paragraph and to be in independent format. Claims 3 – 6, which depend from allowable claim 2, claim 10, which depends from claim 9, and claims 15 – 16, which depend from allowable claim 13, are also believed to be in condition for allowance.

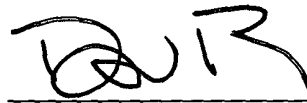
The Examiner should also note that Applicants have added new claims 17 and 18. New claims 17 and 18 generally correspond to claims 1 and 12, respectively, and further recite that

the temperature compensation elements are for performing temperature correction based on an output of the temperature compensation element, a feature that is not taught or suggested by the cited references. Support for new claims 17 and 18 can be found, for example, on page 12, lines 4-23.

In view of the above amendments and remarks, the present application is now believed to be in condition for allowance. A prompt notice to that effect is respectfully requested.

Although no additional fees are believed to be due, permission is given to charge any additional unforeseen fees to Deposit Account 50-1147.

Respectfully submitted,



David G. Posz
Reg. No. 37,701

DGP/khh
Posz & Bethards, PLC
11250 Roger Bacon Drive
Suite 10
Reston, VA 20190
(703) 707-9110
Customer No. 23400